

REMARKS

The Office Action dated September 6, 2007 has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 1, 3-7, 10-13 and 16-18 have been amended to more particularly point out and distinctly claim the subject matter of the invention. Claims 2, 8-9, 11, 14-15 and 19-21 have been canceled without prejudice or disclaimer. No new matter has been added and no new issues are raised which require further consideration or search.

The Office Action rejected claims 19-21 under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. Applicants note that claims 19-21 have been cancelled and their subject matter has been incorporated into respective independent claims 1 and 6-7 by way of amendment. Therefore, Applicants hereby respond to this rejection for at least the reason that the subject matter of cancelled claims 19-21 is still actively pending in the claimed subject matter of claims 1 and 6-7.

The Office Action took the position that the claims contain subject matter which was not described in the specification in such a way as to reasonably convey to a person of skill in the art that the inventors had possession of the claimed invention at the time the application was filed. More specifically, the Office Action alleged that the claimed "control unit timer used in multiplexing unit has a larger value than a control unit timer of AAL2 cell streams" is not described in the specification. Applicants respectfully traverse this rejection.

Applicants respectfully submit that the specification provides a clear description of the claimed “control unit timer used in the multiplexing unit has a larger value than a control unit timer of AAL2 cell streams.” For example, page 5, first paragraph of the PCT counterpart application (WO 01/24570) discloses an example embodiment which recites, in part, “the CU timer used in the AAL-2 multiplexing unit has a larger value than the CU time of the parallel data streams before the multiplexing unit.” It should be readily apparent to one of ordinary skill in the art that the “CU time of the parallel data streams” is a typographical error which should instead read “CU timer of the parallel data streams.” Accordingly, an amendment to the specification has been included herewith to correct this typographical error.

Furthermore, page 8, first paragraph, discloses that the three sectors #1-#3 provide ATM cells to the multiplexing unit to produce a single stream of ATM cells that has a larger number of CIDs used in any of the single ATM VCCs. The larger value of the multiplexing unit control unit timer permits the regular VCCs to be multiplexed into a single stream with a higher efficiency.

Therefore, Applicants respectfully assert that the “control unit timer used in the multiplexing unit has a larger value than a control unit timer of AAL2 cell streams” is clearly described in the specification in such a way as to reasonably convey to a person of skill in the art that the inventors had possession of the claimed invention at the time the application was filed. Applicants respectfully request that this rejection be withdrawn.

Claims 1-14 and 16-21 were rejected under 35 U.S.C. §103(a) as being unpatentable over Applicants admitted prior art (APA) in view of Wakizaka (U.S. Patent No. 6,639,916) in view of Petersen et al. (U.S. Patent No. 6,804,246). The Office Action took the position that APA discloses all of the elements of the claims, with the exception of multiplexing AAL2 cells. The Office Action then cited Wakizaka and Petersen as allegedly curing this deficiency in APA. This rejection is respectfully traversed for at least the following reasons.

Claim 1, upon which claims 3-5 and 10 are dependent, recites a network including a plurality of base stations communicating with a radio network controller by an asynchronous transfer mode based data connection via an I_{UB} interface, at least one of the plurality of base stations comprising a plurality of radio sectors having physically distributed asynchronous transfer mode adaptation layer 2 based termination points. Each termination point has an asynchronous transfer mode adaptation layer 2 over asynchronous transfer mode structure where different call ID's are mapped into an asynchronous transfer mode adaptation layer 2 cell stream of a single asynchronous transfer mode virtual connection under control of a control unit timer having a determined delay time. The network further includes an asynchronous transfer mode switching unit that receives all asynchronous transfer mode adaptation layer 2 cell streams being sent parallel to each other from said termination points. The asynchronous transfer mode switching unit comprises a multiplexer configured to multiplex all of said received asynchronous transfer mode adaptation layer 2 cell streams into a single asynchronous transfer mode virtual connection

to be processed by an asynchronous transfer mode switch. The control unit timer used in said multiplexer has a larger value than a control unit timer of said asynchronous transfer mode adaptation layer 2 cell streams before said multiplexer.

Claim 6, upon which claims 12-13 are dependent, recites a system that includes a plurality of base stations communicating with a radio network controller by an asynchronous transfer mode based data connection via an I_{UB} interface, wherein at least one of the plurality of base stations comprises a plurality of radio sectors having physically distributed asynchronous transfer mode adaptation layer 2 based termination points. Each of the termination points has an asynchronous transfer mode adaptation layer 2 over asynchronous transfer mode structure where different call ID's are mapped into an asynchronous transfer mode adaptation layer 2 cell stream of a single asynchronous transfer mode virtual connection under the control of a control unit timer having a determined delay time. The system further includes a multiplexer configured to receive all asynchronous transfer mode adaptation layer 2 cell streams being sent parallel to each other from said termination points. The multiplexer is configured to multiplex all of the received asynchronous transfer mode adaptation layer 2 cell streams into a single asynchronous transfer mode virtual connection to be processed by an asynchronous transfer mode switch. The control unit timer used in the multiplexer has a larger value than a control unit timer of the asynchronous transfer mode adaptation layer 2 cell streams before the multiplexer.

Claim 7, upon which claims 16-18 are dependent, recites a method that includes using an asynchronous transfer mode based data connection via an I_{UB} interface by a

plurality of base stations to communicate with a radio network controller. The at least one of the plurality of base stations comprises a plurality of radio sectors having physically distributed asynchronous transfer mode adaptation layer 2 based termination points, and wherein each of said termination points has an asynchronous transfer mode adaptation layer 2 over asynchronous transfer mode structure where different call ID's are mapped into an asynchronous transfer mode adaptation layer 2 cell stream of a single asynchronous transfer mode virtual connection under the control of a control unit timer having a determined delay time. The method further includes receiving all asynchronous transfer mode adaptation layer 2 cell streams being sent parallel to each other from said termination points, and multiplexing all of said received asynchronous transfer mode adaptation layer 2 cell streams into a single asynchronous transfer mode virtual connection to be processed by an asynchronous transfer mode switch, and wherein a control unit timer used in said multiplexing has a larger value than a control unit timer of said asynchronous transfer mode adaptation layer 2 cell streams.

As will be discussed below, the combination of APA, Wakizaka and Petersen fails to disclose or suggest all of the elements of the claims, and therefore fails to provide the features discussed above. The rejection is respectfully traversed for at least the following reasons.

Petersen discloses a communications network 40 (see Fig. 5) which includes ATM cells with AAL2 protocol packets carried on a first interface (54) between two nodes (42, 44) of the network. Using the AAL2 protocol packets, user channels are multiplexed onto

one ATM virtual connection (VC) between the two nodes. One of the two nodes, designated as a control node (44), terminates user channels by mapping AAL2 packets of the user channels into modified ATM cells having an AAL protocol different than AAL2.

The AAL protocol utilized for the modified ATM cells, termed AAL2 prime, requires that AAL2 packets carried in the ATM cell payload be whole packets and that the ATM payload not have an AAL2-type start field. Preferably, when using the AAL2 prime protocol only one whole AAL2 packet is carried per ATM cell payload. Termination of the AAL2 user channels at the control node occurs at a pooled and centralized resource termed a cell handling unit (32). The provision of the cell handling unit (32) and the AAL2 prime protocol allows standard ATM equipment (e.g., an ATM switch (30)), to be employed when performing the above operations.

Petersen does not teach or suggest,

“wherein said asynchronous transfer mode switching unit comprises multiplexer...wherein a control unit timer used in said multiplexer has a larger value than a control unit timer of said asynchronous transfer mode adaptation layer 2 cell streams before said multiplexer”, as recited, in part, in claim 1.

The disclosure of Petersen does not teach a control unit timer with respect to the multiplexer and the AAL-2 cell streams. Furthermore, because Petersen does not include a control unit timer for a multiplexer and a control unit timer for the AAL-2 streams, Petersen cannot possibly teach “a control unit timer used in said multiplexer has a larger value than a control unit timer of said asynchronous transfer mode adaptation layer 2 cell streams before said multiplexer”, as recited, in part, in claim 1.

Applicants submit that Wakizaka also fails to teach or suggest “a control unit timer used in said multiplexer has a larger value than a control unit timer of said asynchronous transfer mode adaptation layer 2 cell streams before said multiplexer”, as recited, in part, in claim 1.

Wakizaka discloses an AAL receiving circuit which includes an AAL identifying unit which identifies an AAL type of the ATM cell based on a value of a VCI included in the ATM cell. A standard cell interchanging unit receives the ATM cell and transfers the ATM cell with no change when the ATM cell is determined as a standard cell at the AAL identifying unit. An AAL2 assembling unit receives the ATM cell, divides the ATM cell for each short cell, appends a header of the ATM cell to each of the divided ATM cells, converts them in a form of the standard cell, and transfers them as an ATM cell, when the ATM cell is determined as an AAL2 cell. A cell multiplexer multiplexes the ATM cells which are transferred from the standard cell interchanging unit and the AAL2 assembling unit, and transfers them to a common ATM bus, and at least one AAL terminating unit which determines the AAL type of the ATM cell which is transferred from the common ATM bus and processes the ATM cell according to the determined AAL type.

Wakizaka does not teach or suggest “a control unit timer used in said multiplexer has a larger value than a control unit timer of said asynchronous transfer mode adaptation layer 2 cell streams before said multiplexer”, as recited, in part, in claim 1.

Therefore, for at least the reasons stated above the combination of APA, Wakizaka and Petersen does not disclose or suggest “a control unit timer used in said multiplexer has

a larger value than a control unit timer of said asynchronous transfer mode adaptation layer 2 cell streams before said multiplexer”, as recited, in part, in independent claim 1, and similarly in independent claims 6-7. By virtue of dependency, claims 3-5, 10, 12-13 and 16-18 are also allowable over the prior art. Accordingly, Applicants respectfully request that the rejection of claims 1-14 and 16-18 be withdrawn.

The Office Action rejected claims 2, 11, and 14 under 35 U.S.C. 103(a) as being obvious over APA and Wakizaka, in view of US Patent No. 6,414,970 to Negishi et al. (Negishi). The Office Action took the position that APA and Wakizaka disclosed most of the features of these claims except, AAL-2 streams coming from individual radio sectors and a multiplexed stream have independent control unit timers. The Office Action asserted that Negishi disclosed this feature. Applicants submit that the cited references taken individually or in combination, fail to disclose or suggest all of the features of any of the pending claims.

The deficiencies of APA and Wakizaka are discussed above. Negishi is directed to digital signal multiplexing in which plural degree-one multiplexed streams produced. The Office Action alleged that Negishi discloses independent system clock/timers for each of the input degree one stream and for the degree two multiplexer. However, Applicants submit that Negishi fails to cure the deficiencies of APA and Wakizaka because Negishi fails to disclose or suggest a multiplexing unit configured to multiplex AAL-2 cell streams, which are sent in parallel from said termination points and received at said ATM switching unit, into a single ATM virtual connection.

Further, Applicants submit that Negishi fails to cure the admitted deficiencies of APA and Wakizaka because Negishi fails to disclose or suggest said AAL-2 cell streams coming from individual radio sectors and said single asynchronous transfer mode virtual connection into which said AAL-2 cell streams received from said termination points are multiplexed, and have independent control unit timers, as recited in claim 2 and similarly recited in claims 11 and 14. Negishi merely describes a degree-two multiplexer that includes a time information correction unit 6 for correcting the PCR of the degree-two multiplexed stream generated by the switching unit 5 and clock generator 7 for generating system clocks for the degree-two multiplexer. See col. 10 lines 60-64.

Based at least on the above, Applicants submit that the cited references fail to disclose or suggest all of the features of claims 2, 11 and 14. Accordingly, withdrawal of the rejection under 35 U.S.C. 103(a) is respectfully requested.

The Office Action rejected claims 3 and 8 under 35 U.S.C. 103(a) as being obvious over APA and Wakizaka, in further view of US Patent No. 6,810,030 to Kou (Kuo). The Office Action took the position that APA and Wakizaka disclosed most of the features of these claims except each channel of the plurality of radio sectors has a different bandwidth. The Office Action asserted that Kou disclosed this feature. Applicants respectfully submit that the cited references taken individually or in combination, fail to disclose or suggest all of the features of any of the pending claims.

The deficiencies of APA and Wakizaka are discussed above. Kuo is directed to allocating utilization of multiple carriers in a wideband CDMA transmission system by

determining the carrier utilization interference levels for each of the multiple carriers. However, Kuo fails to cure the deficiencies discussed above regarding claims 1 and 7 because Kuo fails to disclose or suggest a multiplexing unit configured to multiplex AAL-2 cell streams, which are sent in parallel from said termination points and received at said ATM switching unit, into a single ATM virtual connection.


Based at least on the above, Applicants submit that the cited references fail to disclose or suggest all of the features of claims 3 and 8. Accordingly, withdrawal of the rejection under 35 U.S.C. 103(a) is respectfully requested.

Applicants respectfully submit that each of claims 1, 3-7, 10, 12-13 and 16-18 recite features that are neither disclosed nor suggested in any of the cited references. Accordingly, it is respectfully requested that each of claims 1, 3-7, 10, 12-13 and 16-18 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned representative at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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